Remarks

Claims 1-60 remain pending. Claims 1-60 stand rejected. The Applicant respectfully traverses the rejection and requests allowance of claims 1-60 in light of the following remarks.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-9, 13-29, 33-49, and 53-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,377,562 to Schneider (hereinafter "Schneider") in view of U.S. Patent No. 5,608,727 to Perreault et al. (hereinafter "Perreault"). (See pages 2-4 of the final Office action.)

Claims 10-12, 30-32, and 50-52 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schneider and Perreault as applied to claims 9, 29, and 49, and further in view of U.S. Patent No. 6,411,606 to Moura et al. (hereinafter "Moura"). (See page 5 of the final Office action.)

Claims 1, 21, and 41:

Independent method claim 1 is reproduced below, with emphasis supplied:

> 1. A method of operating a probe device in a broadband wireless system, the method comprising:
>
> receiving a message;
>
> processing the message to determine *channel information describing actual use of each of a plurality of channels in the broadband wireless system by each of a plurality of users*;
>
> storing the channel information in a memory in the probe device; and
>
> transferring the channel information from the memory to a user system.

Independent software product claim 21 and independent probe device claim 41 each incorporates similar provisions.

The Office action states, "Regarding claims 1, 21 and 41, Schneider discloses … processing the message to determine channel information describing use of each of a plurality of channels in the broadband wireless system by each of a plurality of users (data recovery from signals received from the bandpass filter by processor 32 in accordance with the particular cellular communication utilized, see col. 5, lines 8-49)…." However, the Office action also states, *inter alia*, "Schneider fails to explicitly disclose channel information describing actual use

of each of a plurality of channels in the broadband wireless system is determined." Presuming that the Office action intends to allege that Schneider fails to explicitly disclose *how* channel information describing actual use of each of a plurality of channels in the broadband wireless system is determined, the Applicant agrees with this statement, and submits that Schneider also does not disclose channel information describing *actual use* of each of a plurality of channels.

The portion of Schneider referred to by the Office action describes the use of "lower data bit rate signals that may comprise voice signals as well as data signals that are *indicative of the quality of the radio link*" (col. 5, lines 3-5, emphasis supplied). These signals are *not* indicative of the *usage* of the radio link. "The data portion of the received signals represents monitored channel quality of the link." (See col. 5, lines 17-18.) These data signals are then demulitplexed into probe signals and ARQ (Automatic Retransmission request) signals which are then output to the service processor 36. (See col. 5, lines 26-28.) Schneider states that, "The probe signals are *metrics* which characterize the transmission channel and frequency selectivity, e.g., *signal strength*." (See col. 5, lines 39-31, emphasis supplied.) The ARQ signals provide a measure of the bit error rate. (See col. 5, lines 34-36.) Notice that all of these signals are measurements of the *quality* of the radio link. None of these signals measure the *actual use* of the link. Schndeider explicitly states, "The processor thus provides a measure of the *bit error rate*… and of the wireless channel *transmission quality*… to be compared against the quality of service criteria for each subscriber." (See col. 5, lines 34-39, emphasis supplied.)

The measurement of a bit error rate and of transmission quality is not equivalent to the measurement of the *actual use* of a link. Contrast Schneider's quality measurements to the examples of actual use described in the present application, including "a per-user breakdown of the time in each channel, bytes transmitted in each channel, and protocol types used in each channel," (page 34, lines 26-28), and it is clear that Schneider's quality measurements are not equivalent. Schneider does not disclose processing the message to determine channel information describing actual use of each of a plurality of channels in the broadband wireless system by each of a plurality of users and, thus, cannot render the Applicant's invention obvious.

The Office action further states, "In an analogous field of endeavor, Perreault discloses a system for frequency spectrum management for dynamic spectrum usage adjustment among applications on a shared medium wherein a spectrum manager allocates channels based at least in part on information for quality and usage metrics for each of the channels allocated for the use

of the application (see Fig. 2, step 204, col. 2, lines 52-67, col. 4, lines 18-59)." However, the Applicant respectfully submits that allocation of channels based on the use of those channels on an application-by-application basis is not the same as monitoring the actual use of a number of channels on a user-by-user basis.

"Typically, radio frequency (RF) spectrum is allocated for multiple applications, e.g., data, voice, and video, in a broadband cable network." (See Perreault at col. 3, lines 1-3.) Perreault later states that the "spectrum agent monitors all the frequency channels currently allocated to it and maintains current information of the quality and usage metrics of each of the frequency channels allocated for the use of its application." (See col. 4, lines 47-50.) Thus, Perreault is concerned about the allocation of channels on a per-application basis. The correlation between users and applications is not always one-to-one. In fact, a single user may be simultaneously running a plurality of applications, such as data and voice. If the usage metrics for the channels are simply performed on a per-application basis, users may easily exceed their bandwidth limits by splitting their usage into a plurality of applications.

Perreault does not disclose the measurement of actual use of each of a plurality of channels in the broadband wireless system by each of a plurality of users. Even when the disclosure of Perreault is combined with the disclosure of Schneider, the combination fails to teach processing the message to determine channel information describing actual use of each of a plurality of channels in the broadband wireless system by each of a plurality of users. Thus, the combination of Schneider and Perreault fails to render claim 1 obvious. Since independent claims 21 and 41 contain limitations similar to those of claim 1, the above discussion also applies equally to claims 21 and 41.

For at least the reasons presented above, the Applicant contends that independent claims 1, 21, and 41 are patentable over Schneider in view of Perreault, and such indication is respectfully requested.

Claims 2-20, 22-40, and 42-60:

Claims 2-20 depend from independent claim 1, claims 22-40 depend from independent claim 21, and claims 42-60 depend from independent claim 41, thus incorporating the features of their respective independent claims. Thus, the Applicant asserts claims 2-20, 22-40, and 42-60 are allowable for at least the same reasons as claims 1, 21, and 41, and such indication is respectfully requested.

Conclusion

Based on the above remarks, the Applicant respectfully requests the reversal of the final rejection of claims 1-60. Additional reasons in support of patentability exist, some of which have been presented in previous communications, but such reasons are omitted here in the interests of clarity and brevity. The Applicant thus respectfully requests allowance of claims 1-60.

The Applicant believes no fees are due with respect to this filing. However, should the Office determine additional fees are necessary, the Office is hereby authorized to charge Deposit Account No. 21-0765.

Respectfully submitted,

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